



HOW TO...

Transfer data using a macro

Don't waste your time typing data that's already on your computer into a spreadsheet. Janet Swift shows you how to set up an Excel macro that will process information for you automatically

One of the most powerful tools in a spreadsheet is the macro recorder. This allows you to record a complex sequence of actions and perform them later with just the click of a button. Even better, it can move data between any number of different spreadsheet workbooks. Here we'll show you how to set up a complex macro that will take information from a form and place it in a database. It will also change the way the data is displayed and work with formulae to process the data automatically for you.

For this exercise we're using an emailable loan form that we originally designed in 'How To... Create email forms in Excel', *Shopper* November 2005. A copy of that tutorial is on the cover disc, as are the three forms we'll be using here.

A spreadsheet database is straightforward – it only requires field names in the top row – and very useful. You can query data to find information and devise reports that summarise its contents. But if your initial task of importing data means retyping information that is already on your computer, you're wasting time. When data is in a standard format you should be able to automate adding it to a database using a macro.

There are two main ways to construct macros: you can write them as you would a program or you can use Excel's macro-recording facility. Writing a macro allows greater flexibility and power but it requires you to learn the macro language VBA (Visual Basic for Applications). Recording a macro sounds simpler, but it too has its complexities. You need to pay attention to details you may otherwise overlook, such as how to move to the cells you want to use. This is easy as long as they are in fixed locations but it's more problematic when a relative position is involved, as this example demonstrates.

1 For this example, use the file Form1.xls supplied on the cover disc. Open this file. Our first task is to set up the database, so in addition you should open a blank workbook. It needs a title and field names exactly the same as those on the form, which in a real scenario would have been emailed to recipients. Copy these from the complete form to the blank workbook.

The best way to do this is to be able to see the form and the database at the same time. Go to the Window menu, click Arrange, then select Horizontal in the dialog box that appears.

2 When we created the form, we protected the worksheet so that the structure could not be changed. However, that same protection now prevents us copying any of the data. Make sure the Form1.xls spreadsheet is active – click on it, so the bar at the top goes bright blue. The inactive spreadsheet will be a dull blue. Go to the Tools menu, select Protection and click on Unprotect Sheet.

You may also want to be able to see the row and column headers in the Form1 spreadsheet. Select Tools, Options and in the View tab tick the boxes Gridlines and Row & Column Headers.

3 Click on cell A1 in the Form1 spreadsheet and copy it, either by selecting Copy from the Edit menu or pressing Ctrl-C. Next, click on cell A1 in your new database spreadsheet and either select Paste from the Edit menu or press Ctrl-V. Go back to Form1 and copy cells A3 to A8. These contain the labels we want in the database.

In the Database spreadsheet, click on cell A2, and from the Edit menu select Paste Special. In the dialog box that opens, place a tick against Transpose

and click OK. The information is copied across the row; that is, into cells A2 to F2. In cell G2 enter End date. Then copy cells A10 to A17 in Form1, and use Paste Special to transpose them into cells H1 to O1 in your Database spreadsheet.

4 For processing the incoming data, something that is going to be fully automated, we need a 'scratch area' in the database workbook. For this purpose, it is convenient to use a second worksheet.

To avoid confusion while setting up the formulae required to process the data, rename Sheet1 as Database and Sheet2 as Scratch. Do this by right-clicking on the tab at the bottom of the worksheet and selecting Rename.

5 Next we'll transfer the data from the Form1 spreadsheet to the Database. We'll be repeating this operation many times as more forms are returned. For that reason, we want to automate this task using a macro.

Before we start recording, we'll practise the keystrokes and mouse clicks we want the macro to perform. Click so that the cursor is inside cell A1 in the Scratch sheet, in the Database workbook. Press the Control and Tab keys simultaneously to move to the Form1 workbook. Highlight cells B3 to D8. From the Format menu, select Cells. In the Alignment tab, make sure that the box next to Merge Cells is cleared. Click OK. Now you can highlight just cells B3 to B8, which contain the respondent's name, address, email and start date.

From the Edit menu select Copy. Click back on cell A1 in the Scratch worksheet and select Paste Special from the Edit menu. Make sure that Values is selected in the Paste section and tick the box next to Transpose. Choosing Values ensures that just the contents of the cells are transferred and not the formatting that makes the form easy to complete.

6 Press Control and Tab to move back to the Form1 workbook. Copy cells C10 to D18, and click on cell H1 in the Scratch worksheet. Use Paste Special to transpose the data.

Information will now be entered into cells H1 to P2 in this workbook. This data needs to be processed first, and this will be done in a fixed location in the Scratch worksheet – Row 4 – before the results are transferred to the Database worksheet. Cell P1 now contains the number of weeks of the loan. The End Date can be calculated by converting it into days (that is, multiplying by 7) and adding it to the Start Date in cell F1. The formula to place in cell G4 is therefore =F1+7*P1. The date will be displayed as a serial number rather than in date format, but don't worry about this.

Summary of macro steps to record

- Our starting point, which is always the same, is on the Scratch worksheet. Click inside cell A1.
- Move to the Form workbook by pressing the Control and Tab keys simultaneously (or Control and F4). This moves to the Form regardless of what that file might be called.
- Unprotect the form by going to the Tools menu and selecting Protection, Unprotect Sheet.
- Select the cells B3 to D8 and unmerge its contents.
- Copy cells B3 to B8.
- Click on cell A1 in the Scratch worksheet. Use Edit, Paste Special and select Values and Transpose.

- Return to the Form by pressing Control and Tab. Copy cells C10 to D18 into cell H1 in the Scratch worksheet, again using Paste Special with Values and Transpose selected.
- On the Database sheet, insert a new Row 3.
- In the Scratch worksheet, copy cells A4 to O4.
- Go to the Database worksheet, select A3 and use Edit, Paste Special but with only Values selected.
- Press Control and Tab to return to the Form worksheet and select Close from the File menu.
- Click No when asked if you want to save the form.

7 Next we need to convert the YES/NO information into 1s and 0s. This can be done easily using the =IF function. Enter =IF(H1="YES",1,0) into H4 and copy the formula across to O4. Finally enter =A1 into cell A4. Copy it across the row to F4; Excel adjusts the formula automatically so that the one in cell B4 will read =B4. Now, as new data is entered into cells A1 to F1, it automatically updates cells A4 to F4. If you haven't already, make sure you save your work.

8 The information in Row 4 of the Scratch worksheet needs to be placed in the Database sheet. To do this, we'll first insert a row between the labels and the first row of data. This might seem silly as there aren't any rows of data yet, but once you've started transferring information from lots of forms, it will make sense.

Click on the Row header number 3 in the Database worksheet – this will highlight the cells in the entire row. From the Insert menu select Rows. Go back to the Scratch worksheet. Copy cells A4 to O4. Click on cell A3 in the Database worksheet and select Paste Special from the Edit menu. In the dialog box that appears, select Values in the Paste

section and click OK. At this point, save the database workbook, close Form1.xls and open Form2.xls, also supplied on the cover disc.

9 We're now ready to start recording our macro, which will be recorded and saved in the file Database.xls. We've already rehearsed the tasks the macro is going to perform, as well as placing the formulae in the Scratch sheet. To make it easier, follow the summary opposite when you record your macro.

At this point you'll have the Form2 worksheet and the Database worksheet open. Make sure the Database workbook is active, and click on the Tools menu. Select Macros, then Record New Macro. Give the macro a suitable name that doesn't contain spaces, hyphens or full stops. Click OK. Go through all the steps again, as outlined in the Summary box.

When you've finished click the Stop Recording button in the Macro toolbar, or go to the Tools menu and select Macro, Stop Recording.

10 This is a complex macro, and it may not work first time. If you encounter a problem, don't worry, just record it again.

Take your time to make sure you're not missing out any steps. To see if your macro works, open Form3 from the cover disc. Click on the Database workbook to make it active. From the Tools menu, select Macro then Macros. Highlight your chosen macro in the list and click Run.

11 Once the macro has run, the new data will appear in the Database sheet. The macro's final step is to close the form and Excel will ask if you want to save the changes you made to Form3.xls. Click No to dismiss the form and be ready for the next one to arrive.

12 A less than satisfactory aspect of our database is the display of the Start and End dates. These are still in serial format. Highlight both columns by clicking on the letter headers at the top. From the Format menu select Cells. On the Number tab of the dialog box that appears, select Date from the Category menu on the left and a suitable date format from the menu on the right. Click OK. This formatting will change all the dates that the macro inserts in the Database in future.

